WHAT IS CLAIMED IS:

1.   An apparatus for calculating an electromagnetic field intensity, comprising:

a virtual current calculator that calculates a virtual current vector

5   from a voltage vector and a mutual immittance matrix of an object including a wave source where a wave source power is applied, the voltage vector and the mutual immittance using a wave voltage of the wave source as a unit voltage;

a wave source input impedance calculator that calculates an

10   input impedance of the wave source based on a virtual wave source current of the virtual current vector and a unit voltage of the wave source;

a wave source voltage calculator that calculates the wave source voltage based on the input impedance and the wave source

15   power;

a current calculator that calculates a current vector based on the wave source voltage calculated and the virtual current vector; and

an electromagnetic field intensity calculator that calculates an electromagnetic field intensity around the wave source, the wave

20   source power being determined based on the current vector.

2.   A method of calculating an electromagnetic field intensity, comprising:

calculating a virtual current vector from a voltage vector and a

25   mutual immittance matrix of an object including a wave source where a

17

wave source power is applied, the voltage vector and the mutual

immittance using a wave voltage of the wave source as a unit voltage;

and

calculating an input impedance of the wave source based on a

5   virtual wave source current of the virtual current vector and a unit

voltage of the wave source;

calculating the wave source voltage based on the input

impedance and the wave source power;

calculating a current vector based on the wave source voltage

10   calculated and the virtual current vector; and

calculating an electromagnetic field intensity around the wave

source, the wave source power being determined based on the current

vector.

15   3.   A computer program product including computer executable

instructions stored on a computer readable medium, wherein the

instructions, when executed by the computer, cause the computer to

perform:

calculating a virtual current vector from a voltage vector and a

20   mutual immittance matrix of an object including a wave source where a

wave source power is applied, the voltage vector and the mutual

immittance using a wave voltage of the wave source as a unit voltage;

and

calculating an input impedance of the wave source based on a

25   virtual wave source current of the virtual current vector and a unit

voltage of the wave source;

calculating the wave source voltage based on the input

impedance and the wave source power;

calculating a current vector based on the wave source voltage

5   calculated and the virtual current vector; and

calculating an electromagnetic field intensity around the wave

source, the wave source power being determined based on the current

vector.

10